

# UNCLASSIFIED

AD NUMBER	
AD029517	
CLASSIFICATION CHANGES	
TO:	unclassified
FROM:	restricted
LIMITATION CHANGES	
TO:	Approved for public release, distribution unlimited
FROM:	Distribution authorized to U.S. Gov't. agencies and their contractors; Foreign Government Information; 10 DEC 1953. Other requests shall be referred to British Embassy, 3100 Massachusetts Avenue, NW, Washington, DC 20008.
AUTHORITY	
DSTL, AVIA 18/4491, 5 Aug 2008; DSTL, AVIA 18/4491, 5 Aug 2008	

THIS PAGE IS UNCLASSIFIED

CONFIDENTIAL

TO BE MAINTAINED AS  
U.S. CONFIDENTIAL  
(par 1f, A/S Ltr  
46-53, 3 Dec 53)



1st Part of No. AAEE/894

MINISTRY OF SUPPLY

**AEROPLANE AND ARMAMENT  
EXPERIMENTAL ESTABLISHMENT**

BOSCOMBE DOWN

FAIRFAX E10/47. VX.350  
(DEPARTMENT 3)

HOOD JETTISON TESTS IN THE BLOWER TUNNEL

TO BE MAINTAINED AS  
U.S. CONFIDENTIAL  
AUTH *E. J. Gidew 10601*  
BY *R. C. Sutton*  
DATE MAY 12 1954

1. THIS INFORMATION IS DISCLOSED ONLY FOR OFFICIAL USE BY THE RECIPIENT GOVERNMENT AND SUCH OF ITS CONTRACTORS UNDER SEAL OF SECURITY. AS MAY BE ENGAGED ON A CURRENT PROJECT DISCLOSE TO ANY OTHER GOVERNMENT OR RELEASE TO THE PRESS OR IN ANY OTHER WAY WOULD BE A BREACH OF THESE CONDITIONS.
2. THE INFORMATION SHOULD BE SAFEGUARDED UNDER RULES DESIGNED TO MAINTAIN THE SAME STANDARD OF SECURITY AS THAT MAINTAINED BY HER MAJESTY'S GOVERNMENT IN THE UNITED KINGDOM.
3. THE RECIPIENT IS WARNED THAT INFORMATION CONTAINED IN THIS DOCUMENT MAY BE SUBJECT TO PRIVATELY OWNED RIGHTS.

ATTENTION IS CALLED TO THE PENALTIES ATTACHING  
TO ANY INFRINGEMENT OF THE OFFICIAL SECRETS ACT.

THIS DOCUMENT IS THE PROPERTY OF H.M. GOVERNMENT.

It is intended for the use of the recipient only, and for communication to such officers under him as may require to be acquainted with the contents of the report in the course of their duties. The officers exercising this power of communication will be held responsible that such information is imparted with due caution and reserve.

Any person other than the authorised holder, upon obtaining possession of this document, by finding or otherwise, should forward it, together with his name and address, in a closed envelope to :—

THE SECRETARY, MINISTRY OF SUPPLY,

~~THAMES HOUSE, MILLBANK, LONDON, W.C.2.~~ ST. JAMES COURT,  
1-13 ST. JAMES ROAD, ST.  
LONDON, W.C.2.

Letter postage need not be prepaid : other postage will be refunded.

All persons are hereby warned that the unauthorised retention or destruction of this document is an offence against the Official Secrets Acts, 1911-1939.

54AA-24870

[REDACTED]

**NOTICE: THIS DOCUMENT CONTAINS INFORMATION AFFECTING THE  
NATIONAL DEFENSE OF THE UNITED STATES WITHIN THE MEANING  
OF THE ESPIONAGE LAWS, TITLE 18, U.S.C., SECTIONS 793 and 794.  
THE TRANSMISSION OR THE REVELATION OF ITS CONTENTS IN  
ANY MANNER TO AN UNAUTHORIZED PERSON IS PROHIBITED BY LAW**

[REDACTED]

*Reproduced*  
**FROM LOW CONTRAST COPY.**

[REDACTED]

**RESTRICTED**

1st Part of Report No. AAE/894

10. DEC. 1953

AEROPLANE AND ARMAMENT EXPERIMENTAL ESTABLISHMENT  
BOSCOMBE DOWN

Fairey E10/47. VX.350  
(Derwent 8)

Hood Jettison Tests in the Blower Tunnel

A. & A.E.E. Ref.: AAE/6225/T/19/MJJ  
Period of Test : 14/8/51 to 16/8/51.

Summary

The jettison characteristics of the hood fitted to the Fairey E10/47 are good and it should jettison safely in flight at speeds between 135 knots and 200 knots. It is possible that it may jettison safely at higher speeds although no tests were carried out at speeds in excess of 200 knots.

The use of explosive cartridges calls for careful servicing and regular replacement, as the failure of one or both cartridges will be dangerous.

This Report is issued with the authority of

  
Air Commodore,  
Commanding, A. & A.E.E.

/Introduction.....

## 1. Introduction

Tests were required to assess the jettison characteristics of the hood fitted to the Fairey E10/47 aircraft, and the possibility of injury to the pilot, or damage to the aircraft in the event of an emergency jettison being made in flight.

## 2. Description of the hood and jettison mechanism

2.1. The hood was of broad 'U' section, and was constructed of light alloy, with three windows of transparent material. It slid fore and aft on two rails to facilitate entrance to the cockpit. These rails were jettisoned with the hood.

2.2. For normal entry to the cockpit the hood could be moved on its rails by a hand winding gear. When the hood was jettisoned, two meshing gears disengaged, one remaining on the aircraft, and the other going with the rail. Each rail was held to the aircraft by two catches. These catches were connected to bellcranks by push-pull rods. The bellcranks were attached to electrically fired hood jettison guns. Each gun consisted of a breech block, which housed the explosive cartridge, and a piston in a cylinder.

2.3. When the pilot's jettison button was pressed the cartridge in each jettison gun fired. This forced the piston up the cylinder. The pistons, prevented from returning to their original position by two pairs of tapered collets which jammed them in the extended position, moved the bellcranks, which pulled the push-pull rods, and disengaged the two catches on each hood rail. The hood and rails were then free to pivot about the hinge pins on the fuselage, and leave the aircraft.

2.4. Fig. 1 shows details of the jettison mechanism, and jettison guns.

## 3. Condition of aircraft relative to tests

3.1. The tailplane was removed, and a guard built to protect the leading edge of the fin, to prevent any possible damage to the tail surfaces.

3.2. Rescue slings were fitted to the hood for all tests.

3.3. All the tests were made using the pilot's jettison button.

3.4. The 6 ft. diameter nozzle was fitted to the blower tunnel for all tests.

## 4. Conditions of the tests

4.1. The aircraft was set up in front of the tunnel nozzle at the correct flying attitude for the test airspeed, with the tunnel set level to direct the airflow over and around the hood.

4.2. Tests were carried out under the following conditions:-

Test	Speed	Datum angle to airflow	Yaw
1	200 kts.	+7° 18'	Zero
2	135 kts.	+16° 30'	Zero
3	200 kts.	+7° 18'	10° to Port

4.3. High speed cine records of each test were taken from two positions, one from the beam which incorporated a spark time base, and the other from the upper frontal position.

## 5. Results of Tests

### 5.1. Test 1 200 knots, No Yaw

5.1.1. Immediately the jettison button was pressed the front of the hood commenced to rise, until the rails became detached from their rear pivot pins after pitching through approximately  $22^{\circ}$ . The hood then continued to pitch and rise until it passed high over the fin in the inverted position.

5.1.2. Fig. 2 shows several positions of the hood on being jettisoned, and the times taken to assume those positions from the instant of operating the jettison button.

### 5.2. Test 2 135 knots, No Yaw

5.2.1. The results were similar to Test 1, except that the release angle was approximately  $45^{\circ}$ .

5.2.2. Fig. 3 shows several positions of the hood on being jettisoned, and the times taken to assume those positions from the instant of operating the jettison button.

### 5.3. Test 3 200 knots $10^{\circ}$ Yaw to Port.

5.3.1. The hood released from the airframe at approximately  $30^{\circ}$ . The hood then commenced to roll to starboard whilst continuing to pitch and rise, until it passed high over the fin.

5.3.2. Fig. 4 shows several positions of the hood on being jettisoned, and the time taken to assume those positions from the instant of operating the jettison button.

## 6. Conclusions

6.1. The hood will jettison safely in flight at speeds between 135 knots and 200 knots.

6.2. Small angles of yaw do not adversely effect the jettison characteristics.

6.3. It is possible that the hood will jettison safely at higher speeds although no tests were carried out at speeds in excess of 200 knots.

6.4. The jettison mechanism is simple, and operated satisfactorily for all the tests.

## 7. Recommendations

7.1. It is strongly recommended that the jettison gun cartridges be replaced at regular intervals. Should both cartridges fail to fire the hood will fail to jettison, or if only one cartridge fails, the jettison may be very bad, resulting in injury to the pilot or damage to the aircraft.

7.2. The electric circuit to the cartridge must be carefully maintained and checked at frequent intervals.

7.3. The push-pull rods must be carefully adjusted to ensure that all four rail catches disengage simultaneously.

## Circulation List

A.D.R.D.L.1.	2 copies 1 for Action
T.P.A.3/T.I.B.1c.	75 copies
R.T.O. Faireys	4 copies

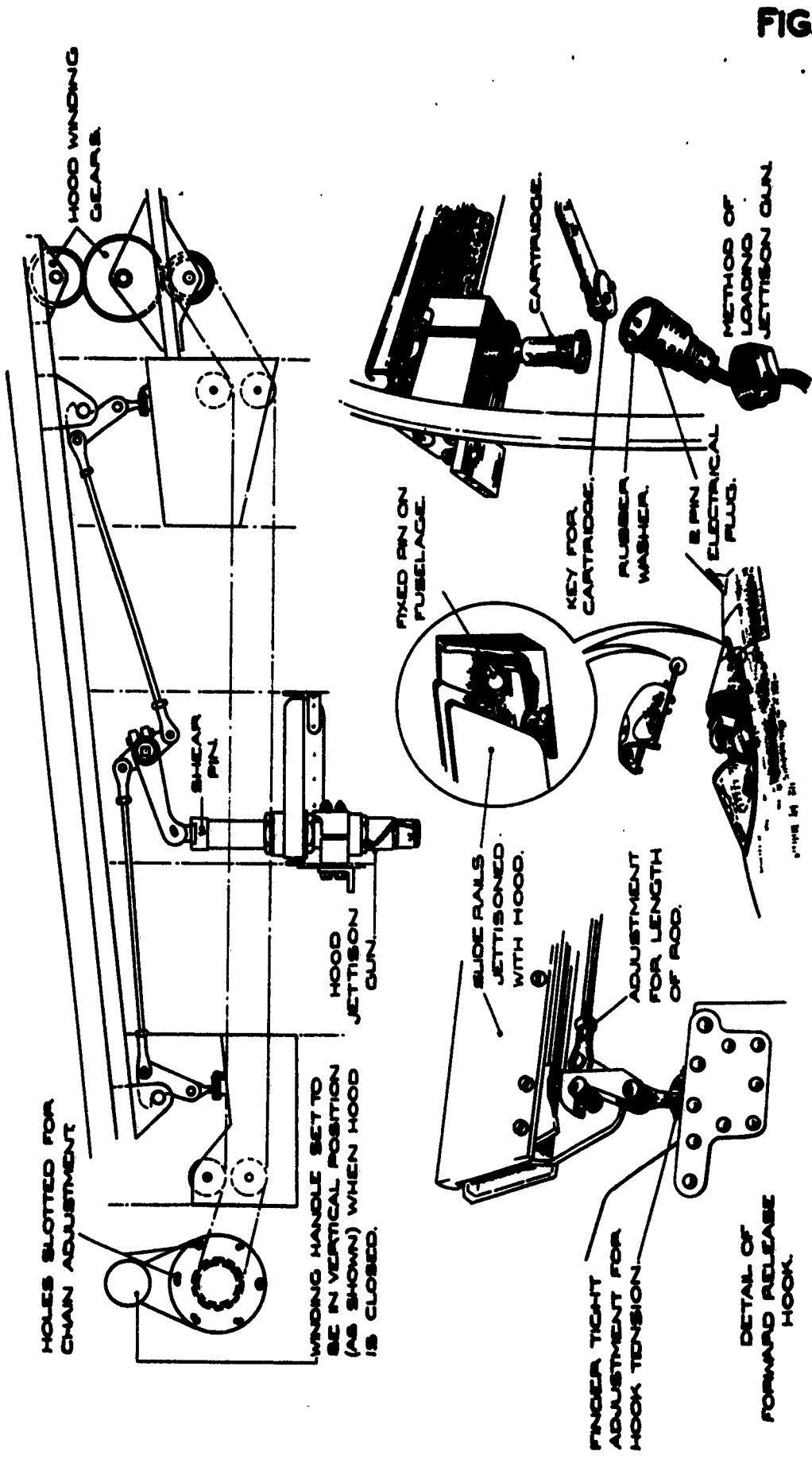


FIG. 1

DETAILS OF HOOD MECHANISM.

SK NPA-363 REPAIR OF REPORT N9A&EE/894 FAIRLEY E1047VX150 TR. 11/2 CH. M. JENNINGS APP. 1/11/ for SofE 15.3.9

FIGS. 2 & 3

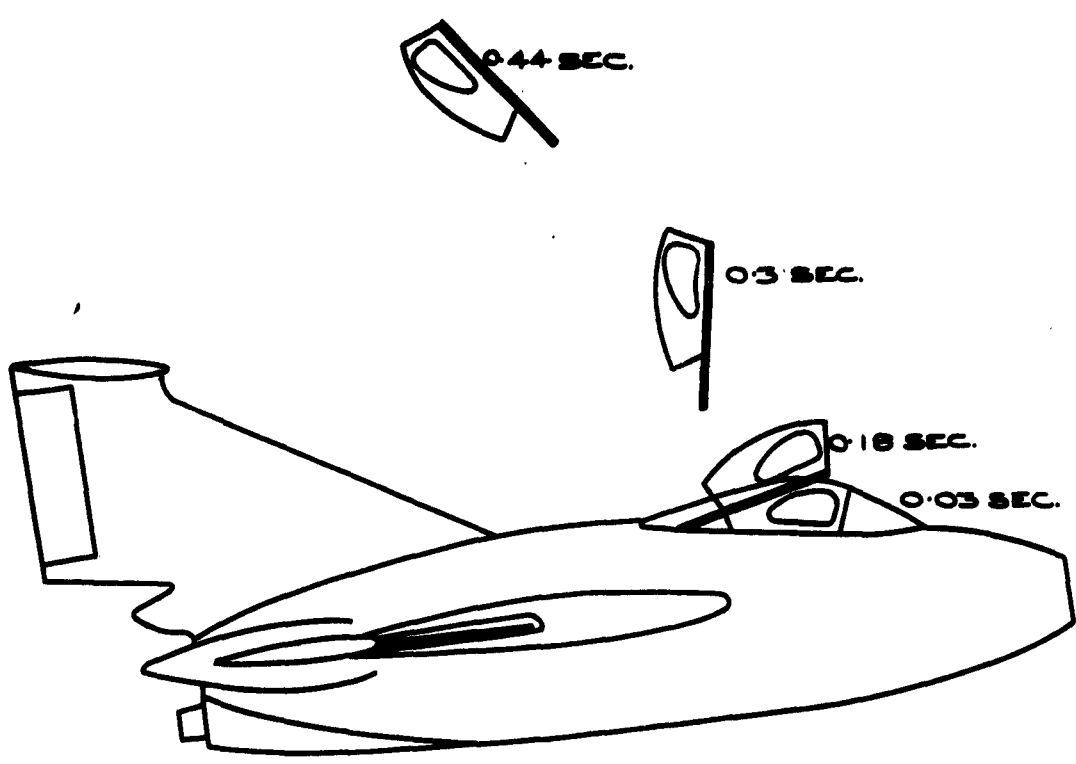


FIG. 2 TEST 1 200 KTS. NO YAW.

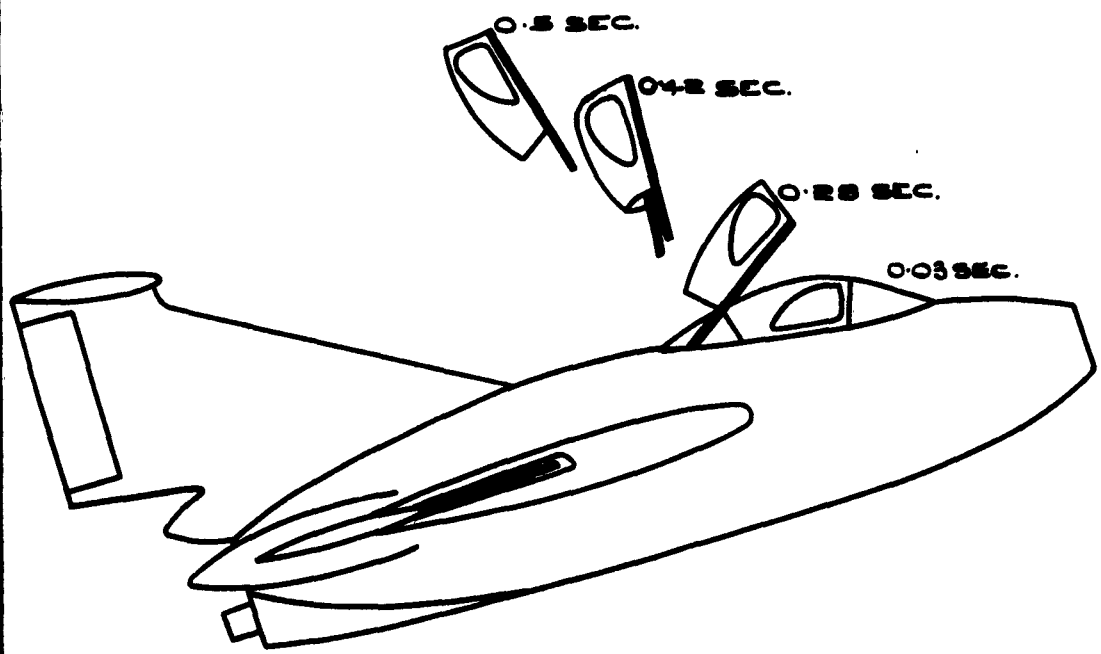


FIG. 3 TEST 2 135 KTS. NO YAW.

HOOD JETTISON TESTS.



FIG. 4

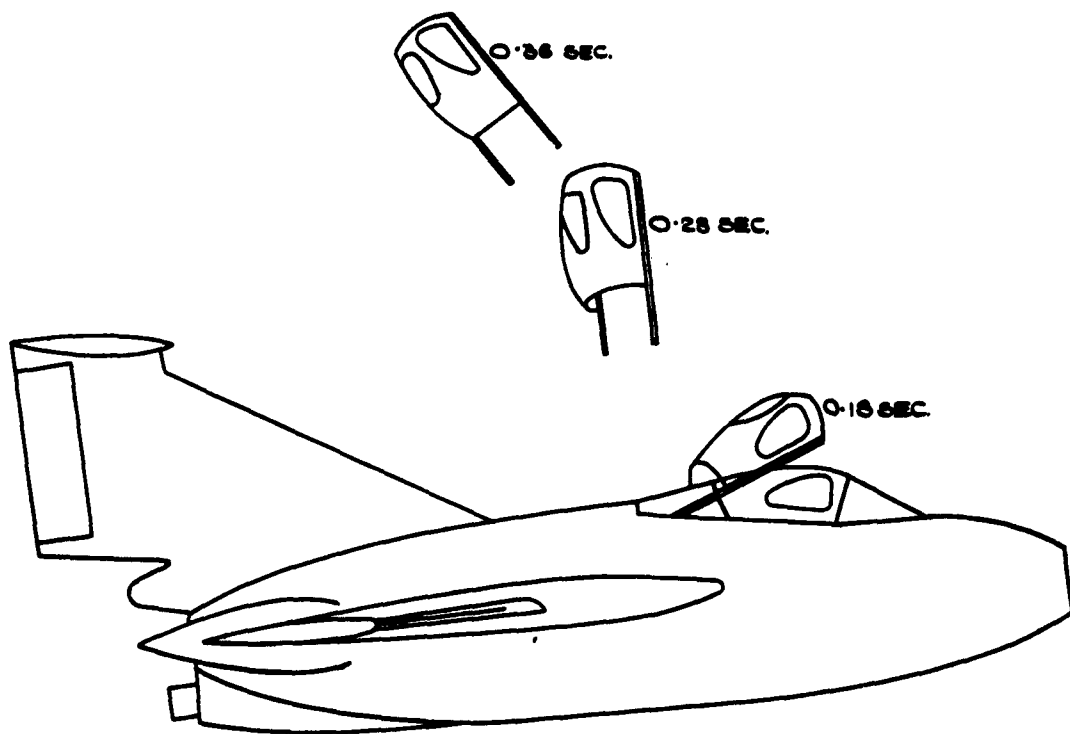


FIG. 4. TEST 3. 200 KNOTS. 10° YAW TO PORT.  
(TIMES TAKEN FROM INITIAL MOVEMENT OF HOOD)



*Information Centre  
Knowledge Services*  
**[dstl]** Porton Down,  
Salisbury  
Wiltshire  
SP4 0JQ  
22060-6218  
Tel: 01980-613753  
Fax 01980-613970

Defense Technical Information Center (DTIC)  
8725 John J. Kingman Road, Suit 0944  
Fort Belvoir, VA 22060-6218  
U.S.A.

AD#: AD029517

Date of Search: 5 August 2008

Record Summary: AVIA 18/4491

Title: Fairey E10/47 VX.350 (Derwent 8): hood jettison tests in the Blower Tunnel  
Availability Open Document, Open Description, Normal Closure before FOI Act: 30 years  
Former reference (Department) 894 Pt 1  
Held by The National Archives, Kew

This document is now available at the National Archives, Kew, Surrey, United Kingdom.

DTIC has checked the National Archives Catalogue website (<http://www.nationalarchives.gov.uk>) and found the document is available and releasable to the public.

Access to UK public records is governed by statute, namely the Public Records Act, 1958, and the Public Records Act, 1967.

The document has been released under the 30 year rule.

(The vast majority of records selected for permanent preservation are made available to the public when they are 30 years old. This is commonly referred to as the 30 year rule and was established by the Public Records Act of 1967).

**This document may be treated as UNLIMITED.**